DOCUMENT RESUME

ED 247 044 RC 014 820

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TITLE Lead Oxides Used in the Treatment of Empacho.
PUB DATE 14 Jun 83
NOTE 12p.; Paper presented at the U.S/Mexico Cross Border Health Association Meeting (Albuquerque, NM, June 14, 1983).
PUB TYPE Information Analyses (070) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Folk Culture; Health Education; Hispanic Americans; *Immigrants; *Lead Poisoning; Medicine; *Mexican Americans; Mexicans; Migrants; *Public Health; *Special Health Problems
IDENTIFIERS Colorado; *Folk Medicine; Gastrointestinal System

ABSTRACT

Many Mexican Americans regard "Azarcon," a lead tetroxide powder, and "Greta," a lead monoxide powder, as desired medical treatments for empacho, a perceived intestinal blockage. The folk medicines, available in Mexico but not in the United States, can cause lead poisoning, which can result in brain swelling, coma, permanent mental retardation, and death. As of June 1983, the medicines had resulted in 15 confirmed cases of lead poisoning in four states with unconfirmed reports of cases in three more states. Information from a "curandera" (folk healer) and the Colorado family of a 2-year-old victim and results of a survey of Hispanic American migrant families in Colorado indicate that gastrointestinal complaints such as constipation and abdominal pain are regarded as symptoms of empacho. Folk treatments of empacho differ with the severity of the case and range from massage to skin stretching and laxative teas to enemas and purgatives such as "Azarcon" and "Greta." The two substances are given sparingly, either dry or mixed with a liquid, on a 3- or 7-day basis. Because many surveyed Mexican Americans report being treated for empacho, frequently with the lead substances, warnings about "Azarcon" and "Greta" should be the subject of nationwide public health education efforts. (SB)

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LEAD OXIDES USED IN THE TREATMENT OF EMPACHO

by

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Greely, Colorado

Presented at

U.S./Mexico Cross Border Health Association Meeting

Albuquerque, New Mexico June 14, 1983

Final Version

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- "Lead Oxides Used in the Treatment of Empacho" by Alan Ackerman, Ph.D.

In the fall of 1981, subsequent to a routine lead screening program which identified lead poisoning in a two year old Hispanic female, an unusual source of lead was identified as the cause of the poisoning. (1) This lead source was a dense, brillant orange powder, which was not soluable in water and which upon analysis was shown to be lead tetroxide (Pb_3O_4). The sample contained 93.5% elemental lead by weight. This brillant orange powder, called Azarcón by the parents, was obtained for the child by the maternal grandmother who had also treated the child with it in Mexico. The family is originally from Chihuahua. (2) The reaction of the family to our identification of Azarcón as the source of lead has proven to be indicative. They were surprised that we were concerned about Azarcón.

Azarcón was known to them to be a widely used and well regarded medicine which was particularly useful in the treatment of chronic or severe empacho.* Since the girl being treated was especially prone to severe empacho, Azarcón was considered a useful and needed remedy. Direct questioning of other families, recently immigrated from Mexico, about Azarcón, confirmed the impression that Azarcón was a well regarded and desired medicinal for the treatment of empacho.

The discovery of Azarcón use in Colorado led to an investigation by the Lead Poisoning Program of the Colorado State Health Department headed by Dr. Kay Kreiss. This investigation sought to identify possible distribution points where Azarcón might be sold in Colorado. A thorough investigation indicated that Azarcón was not available for sale in Colorado.

At Sunrise Community Health Center where the child was treated for the lead poisoning resulting from Azarcón use, the clinic staff posted a hand lettered sign. The sign said in Spanish, "Azarcón is a bright orange powder which contains a large amount of lead. It is a poison. If you have used Azarcón, please inform the nurse." Upon reading this sign, two patients began to talk about Azarcón. One said, "That's a stupid sign. Azarcón's not orange, it's white and it's also called Greta." The other said, "Oh my, I have Greta at home." This second individual brought in her sample of Greta which

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* Empacho can be defined as a perceived blockage of the intestinal track.

upon analysis proved to be essentially pure lead monoxide, PbO. She denied any use by family members as the Greta was purchased for another but never delivered. The unlabeled sample of Greta was purchased in a mercado approximately one year previously in Juarez. The sample was light yellow in color and oxidixed to a grey color upon standing. The sample contained approximately 90% lead by weight. "Greta" is a dense, light yellow powder which does not disolve in water but which will disolve in dilute hydrocholoric acid.

For background information to the reader unfamilar with lead poisoning a brief discussion of lead poisoning as a syndrome is provided here. The term lead poisoning is perhaps unfortunate because, at least in English, the term poison brings to mind a substance which: 1. is highly toxic, 2. acts rapidly, 3. causes immediate, observable injury. The conditions of high toxicity and rapid action seem to be most associated with poisons in the layman's mind. Lead is a poison which is extremely toxic but which acts slowly and whose effects are not easily observed until major damage is done. The major damage from lead poisoning is brain swelling which may result in coma and death. If the child recovers from the encephalopathy, the result may be permanent mental retardation. Prior to the initiation of encephalopathy, however, the damages due to lead poisoning were believed to be slight, until Needleman (3) carefully documented that very low levels of lead can lower measured intelligence and performance on a number of tests. Needleman demonstrated that the effects of lead are clearly seperable from the other effects which may be responsible for the limitation of a child's I.Q. Needelman also demonstrated that these low level effects are observable by using teacher's ratings of chilren's behavior and comparing these ratings to levels of lead in deciduous teeth. A full discussion of the effects of low level lead intoxication and of lead poisoning are beyond the scope of this paper but excellent reviews are available. The reader is especially referred to, "Preventing Lead Poisoning in Young Children", April 1978 (4) and "Lead Poisoning and Undue Lead Exposure in Children: History and Current Status in Low Level Lead".(5)

Lead is an ubiquitous compound present in many industrial processes. In Mexico, some of these processes include the addition of lead tetroxide to paint for use as a primer and the use of lead monoxide as an abrasive in polishing tiles. We know also that lead from gasoline or industry may be borne through the air; that lead may be present in foods as a contaminant,

in part from the use of lead solder in can manufacturing; that lead can be present in water, especially where lead is used in either pipes or pipe fittings.

Lead is a non-biodegradable substance. Once it enters the environment, lead does not leave that environment unless specifically removed. Dirt that has been sprayed with pesticides containing lead arsenate or contaminated in some way with lead will constantly contain lead until that lead is removed. Of course, in the United States, leaded paint used on houses up until the mid-1950's and after on external surfaces of houses until the late 1960's constitutes the major form of lead ingested in U.S. children.

In Colorado, knowledge about Azarcón seems to be principally localized to Mexican-Americans who have recently come to the United States from Mexico. Among the Hispanic population as a whole in our area, approximately 10% of high school Hispanic children knew what Azarcón was and knew how and why it was given. In addition, at least one grandmother who had treated empacho in her community until she stopped doing massage because of her age, frequently included Greta in her patients' regimen. Data presented below is a summary of conversations with the family who had used Azarcón, the cuarandera (folk healer) who used Greta and is also based on a survey of migrant families in Colorado during the summer of 1982. (6)

In our area of Northern Central Colorado, empacho is usually defined as a bolus of undigested food which adhears to the intestine and blocks its function. Frequently mentioned foods which cause empacho include gum, uncooked food - especially tortilla dough and cold cuts and occassionally unpopped popcorn or white bread. In addition, any undercooked food is considered suspect. Symptoms of empacho might include any gastro-intestinal complaint - especially constipation, abdominal pain, poor appetite and eating any of the above mentioned foods. It is an interesting clinical observation, albeit denied by the local sources, that children who are termed "prone to severe empacho" are frequently lower in weight and in height than their peers who are not considered seriously prone to empacho.

Treatment for empacho seems to differ according to the perceived severity of the disorder. The mildest form of treatment includes massage or massage with lubricants. The next level of treatment, as the disease is perceived to be worse, is to stretch the skin - especially the skin of the lower back, until it can be heard to "pop". Somewhere within these first two levels, one also sees the use of mild teas which have laxative effects.

The third level of treatment is the use of stronger laxatives, enemas and purgatives; including the lead oxides Azarcón and Greta. At least one informant considers Greta to be a specific agent for the dislodging of the bolus and another informant seems to feel Azarcón is a purgative or cleansing agent which rids the body of the bolus.

As to the frequency of empacho treatment, 50% of surveyed migrant farm worker children in Colorado have, at some time in their life, been treated for empacho. Seven percent of all migrant children were treated with substances named either Azarcón or Greta at some time in their life. Forty percent of Spanish surnamed children in low income communities and enrolled in a federal food program, were treated for empacho at some time in their life. None of these had ever been treated with Azarcón. Seventeen percent of local low-income, principally Hispanic, children in Greeley have been treated for empacho at some time in their life and none of these has been treated with Azarcón. Azarcón and Greta use in other locations can be assessed from the data of the Los Angeles County Health Department that showed that 11% of the Mexican-American population consisting of adults and children has used Azarcón at some point in their life. (7) Dr. Robert Trotter has collected preliminary data from a sample of clinics at or near the U.S./ Mexico border in New Mexico, Arizona and Texas. He has generated a randomly selected sample, of which between 3 to 30% of the individuals screened indicated that they or someone in their families had taken Azarcón or Greta at some time in their life. (8)

It is useful to note that Azarcón and Greta seem to be particularly for the treatment of empacho. As such, one can calculate the percent of those every treated with Azarcón and Greta who were also treated for empacho. This formulation of the question allows for a public health targeting concerning Azarcón and Greta. This is to say that only those people who have ever been treated for empacho need to be questioned specifically about Azarcón and Greta use. This will significantly increase the effectiveness of detecting lead use through historical questions and may help keep the costs of a screening program lower than they might otherwise be. In one instance Azarcón was also taken for other ailments (nausea, flu-like symptoms) but was also used for empacho treatments.

The distribution and use of Azarcón and Greta appear to be geographically classifiable. Azarcón seems to be widely known the further west one travels

in Texas, with Greta less known. The further east one travels in Texas along the Mexican border, the more Greta is known and the less Azarcón is known. There appears to be a significant population group who have used either Azarcón or Greta at least once for the treatment of empacho. The source of Azarcón and Greta has uniformly been from Mexico, although Greta has been sold in the United States. (9) In addition, information recently collected in Sonora, Mexico has identified a source of supply for Azarcón which is based near Mexico City. (10) This Mexican drug company distributed one kilogram of Azarcón as a medicine.

The dose of Azarcón has varied, the most common being the amount usually given on the tip of a spoon or the tip of a knife. In Colorado, some say it should be mixed with sugar and taken dry, others say mixed in a liquid such as Yerba Buena tea and others say followed by castor oil. In Texas, Greta is frequently mixed in olive oil and the amount given is a "pinkie-tip full" or a "pinch" up to doses as large as a teaspoon. In Mexico reports indicate Azarcón is also given on either a three day or a seven day basis.

The frequency of use of Azarcón varies among different informants. Most indicate Azarcón or Greta should be given only once and then in very small amounts. Some additionally indicate it should never be given again. However, in Sonora, Mexico, the indicated frequency is either three days or seven days consecutively using the amount that can be held on a broom wisk or the amount that can be held on the head of a match for each day. In rare instances, no limitation of the times Azarcón can be given is mentioned. In the Colorado case at least four seperate doses and perhaps as many as ten to twelve doses were given. Currently there are fifteen confirmed cases of lead poisoning from Azarcón or Greta.* Eleven out of these fifteen are females and four of the fifteen are males. The age of fourteen of the fifteen cases is known with nine of the fourteen being younger than five years, three of the fourteen being six, eight and nine respectively and two of the fourteen being nineteen and twenty-four years of age. The mean blood lead for those under the age of five years - detected maximum mean value was 79.3 micrograms. For those over five years of age the mean detected maximum level of lead was 78.8 micrograms per 100 milliters of blood. Of the fifteen known cases, 36% of them were identified by examining siblings or relatives of an indexed case. A complete table of the identified cases is given below. (See figure 1 - Clinical Poisonings) Additional cases have been

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* As of the date of this paper.

reported in New Mexico - 2 , Arizona -1 and Texas -1 but are either pending confirmation or were lost to follow up at the time of the publication of this report.

Public education efforts have been undertaken in Los Angeles and nationwide. In Los Angeles, the Los Angeles County Health Department has promoted radio and media coverage and newspaper articles concerning Azarcón. On a nationwide basis, there has been coverage of the issue by the Spanish Information Network and by various local radio stations on an individual basis. In addition, the Sunrise Community Health Center and the National Indian Health Board Science Center (now associated with the University of Arizona, College of Medicine, Department of Family and Community Medicine) have conducted a poster campaign with funds from Chevron U.S.A. Inc. Additional funds have been provided by Merck & Company. This education campaign has delivered posters to all 330 funded Migrant Health Centers in the United States and through the Pan American Health Organization is field testing the posters in Mexico. Posters are available from NIHB Science Center P.O. Box 2480, Greeley, Colorado 80632.

Conclusion. Lead poisoning from Azarcón and Greta, lead oxides used as folk medicines in the Mexican-American culture, must now be considered as an investigatable condition when treating Mexican-American patients, especially young adults and young children who present with symptoms consistent with lead poisoning. In addition, as these cases were not identified by systematic screening efforts, it may be advisable to consider systematic screening of recently immigrated Mexican-American populations for lead intoxication either through blood screenings for elevated EP, history of Azarcón and Greta use or empacho or both. Lastly, whenever the source of lead poisoning is investigated in Mexican-American patients, Azarcón or Greta must be considered.

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(8) Dr. Robert Trotter, II. Preliminary data presented orally at National Migrant Health Association Meeting in Fresno, CA (1983) and at U.S./Mexico Cross Border Health Association meeting in Albuquerque (1983).

(9) ibid.

(10) R. Bear, personal communications (1983): information collected in Sonora, Mexico, has identified a distribution source for Azarcon near Mexico City.

FIGURE I - CLINICAL POISONINGS

REFERENCE	STATE	SEX	AGE @ DETECTION	MAXIMUM EP	MAXIMUM BLOOD LEAD LEVELS	SYMPTOMATIC	CHELATED	OTHER
1) 2	Colorado	female	2.5 yrs	19.2 g	137 ug	no	x3	
2) unpublished	Michigan	female	9 yrs	88	55	no	no	All members of one family. Source discovered retrospectively. Cases '82, source identified by HX '83. Oldest sibling (not identified here) is mentally retarded with no known cause.
3) unpublished	Michigan	male	6 yrs	100	59	no	no	
4) unpublished	Michigan	female	3 yrs	211	82	?*	x1	
5) unpublished	Michigan	female	1 yr	273	53	no	no	Case dated '82. Azarcon usage denied '83.
6) 1	Calif-LA	male	4 mos	-	45 ug	yes - acute toxicity	no	
7) 9	Calif-LA	female	24 yrs	-	120	?	?	
8) 9	Calif-LA	female	19 yrs	-	68	?	?	
9) 9	Calif-LA	female	17 mos	-	63	?	?	
10) 9	Calif-SD	female	15 mos	-	124	?	yes	Both member of one family. 3 year old sibling died of seizures in Mexico. Autopsy information not available.
11) 9	Calif-SD	male	8 yrs	-	92	?	yes	
12) 9	Calif-SB	female	19 mos	-	114	?	?	
13) 9	Calif-SB	female	28 mos	-	60	?	?	
14) unpublished	Wisconsin	female	35 mos	146	52	no	no	Older sibling (not included) chelated 5 years ago. P_b source unknown poison

*Unknown to this author.

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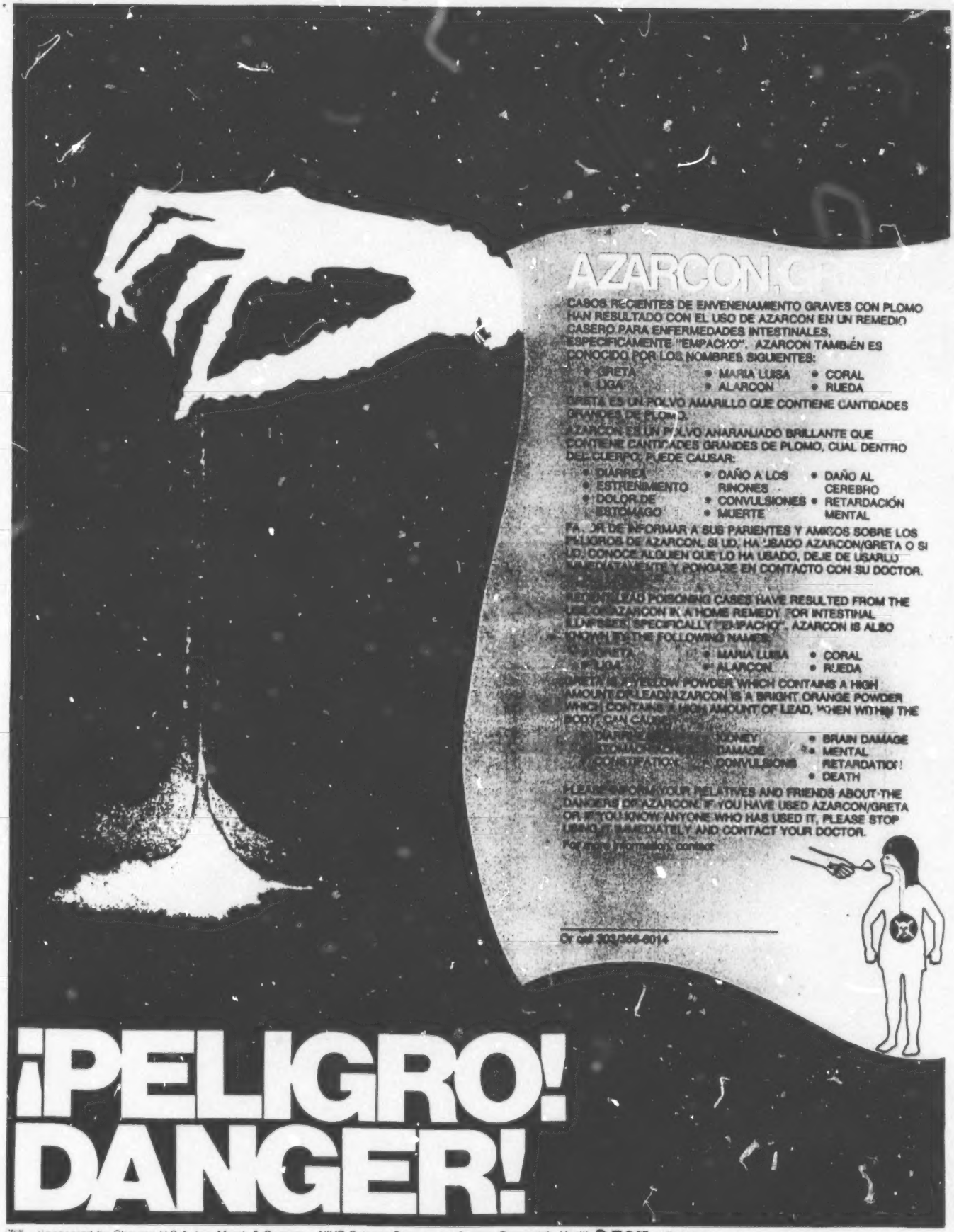
AZARCON/GRETA
CASOS RECIENTES DE ENVENENAMIENTO GRAVES CON PLOMO HAN RESULTADO CON EL USO DE AZARCON EN UN REMEDIO CASERO PARA ENFERMEDADES INTESTINALES, ESPECIFICAMENTE "EMPACHO". AZARCON TAMBÉN ES CONOCIDO POR LOS NOMBRES SIGUIENTES:
• GRETA
• LIGA
• MARIA LUISA
• ALARCON
• CORAL
• RUEDA
GRETA ES UN POLVO AMARILLO QUE CONTIENE CANTIDADES GRANDES DE PLOMO.
AZARCON ES UN POLVO ANARANJADO BRILLANTE QUE CONTIENE CANTIDADES GRANDES DE PLOMO, CUAL DENTRO DEL CUERPO, PUEDE CAUSAR:
• DIARREA
• ESTREÑIMIENTO
• DOLOR DE ESTOMAGO
• DAÑO A LOS RINONES
• CONVULSIONES
• MUERTE
• DAÑO AL CEREBRO
• RETARDACIÓN MENTAL
FAVOR DE INFORMAR A SUS PARIENTES Y AMIGOS SOBRE LOS PELIGROS DE AZARCON. SI UD. HA USADO AZARCON/GRETA O SI UD. CONOCE ALGUIEN QUE LO HA USADO, DEJE DE USARLO INMEDIATAMENTE Y PONGASE EN CONTACTO CON SU DOCTOR.
ABOUT LEAD POISONING CASES HAVE RESULTED FROM THE USE OF AZARCON IN A HOME REMEDY FOR INTESTINAL ILLNESSES, SPECIFICALLY "EMPACHO". AZARCON IS ALSO KNOWN BY THE FOLLOWING NAMES:
• GRETA
• LIGA
• MARIA LUISA
• ALARCON
• CORAL
• RUEDA
GRETA IS A YELLOW POWDER WHICH CONTAINS A HIGH AMOUNT OF LEAD. AZARCON IS A BRIGHT ORANGE POWDER WHICH CONTAINS A HIGH AMOUNT OF LEAD, WHEN WITHIN THE BODY, CAN CAUSE:
• DIARRHEA
• VOMITING
• CONSTIPATION
• KIDNEY DAMAGE
• CONVULSIONS
• BRAIN DAMAGE
• MENTAL RETARDATION
• DEATH
PLEASE INFORM YOUR RELATIVES AND FRIENDS ABOUT THE DANGERS OF AZARCON. IF YOU HAVE USED AZARCON/GRETA OR IF YOU KNOW ANYONE WHO HAS USED IT, PLEASE STOP USING IT IMMEDIATELY AND CONTACT YOUR DOCTOR.
For more information, contact
Or call 303/366-6014
¡PELIGRO!
DANGER!

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